

1200V SiC Schottky Diode Module

Description

The SiC Schottky Diode Module SOT-227A package devices are optimized to reduce losses and switching noise in high frequency power conditioning electrical systems.

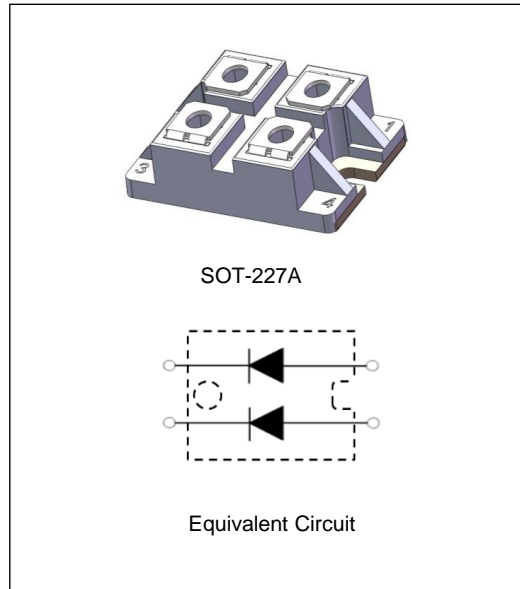
These SiC Schottky Diode Module series are ideally suited for Energy Storage ,High Power inverters, Power Quality Management and other applications where switching losses are significant portion of the total losses.

Features

- Revolutionary semiconductor material - Silicon Carbide
- No reverse recovery current
- Temperature independent switching behavior
- Excellent thermal performance
- High reliability
- Isolation Type Package

Applications

- Power Quality Management
- Energy Storage



Absolute Maximum Ratings (at $T_c=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Conditions | Ratings | Unit |
|--------------|--|------------------------------|----------|------------------|
| V_{RRM} | Repetitive Peak Reverse Voltage | | 1200 | V |
| V_{DC} | DC Blocking Voltage | | 1200 | V |
| $I_{F(AVG)}$ | Average Forward Current | $T_c \leq 150^\circ\text{C}$ | 30 | A |
| I_{FSM} | Non-Repetitive Forward Current , $t_p=8.3\text{ms}$, Half Sine Wave | | 270 | A |
| P_D | Maximum Power Dissipation | | 500 | W |
| T_J | Operating Junction Temperature Range | | -55~+175 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | | -55~+150 | $^\circ\text{C}$ |
| V_{ISO} | Isolation Voltage | AC 1minute | 2500 | V |
| | Mounting screw Torque: M6 | | 4 | N.M |
| | Weight | | 300 | g |

Thermal Characteristics

| Symbol | Parameter | Ratings | Unit |
|-----------------------|--|---------|--------------------|
| $R_{th(J-C)}$ (Diode) | Thermal Resistance, Junction to case for Diode | 0.3 | $^\circ\text{C/W}$ |

Electrical Characteristics of Diode @T_C=25 °C unless otherwise noted

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------------|-------------------------|--|------|------|------|------|
| V _F | Diode Forward Voltage | I _F =30A | - | 1.45 | 1.8 | V |
| | | I _F =30A, T _J =175°C | - | 2.0 | 2.3 | V |
| I _R | Reverse Current | V _R =1200V | | | 100 | μA |
| | | V _R =1200V, T _J =175°C | | | 500 | μA |
| Q _C | Total Capacitive Charge | V _R =800V, I _F =30A, di/dt=200A/μs | | 130 | | nC |
| C | Total Capacitance | V _R =400V, f=1MHz | | 150 | | pF |

Typical Performance Characteristics

Fig. 1. Forward Characteristics

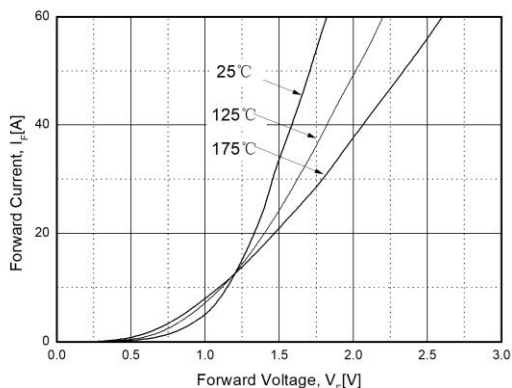


Fig. 2. Rate Current vs. T_C

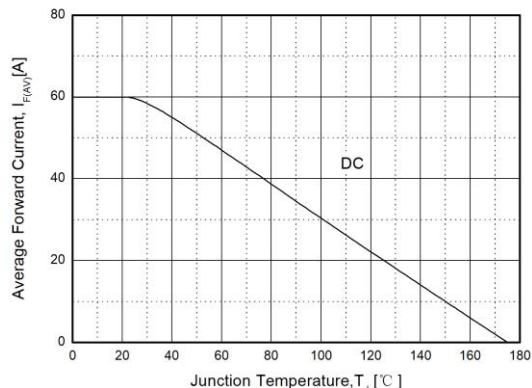


Fig. 3. Power Dissipation vs. T_J

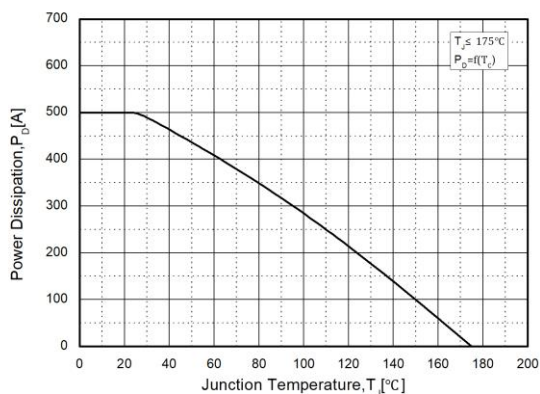


Fig. 4. Transient Thermal Impedance

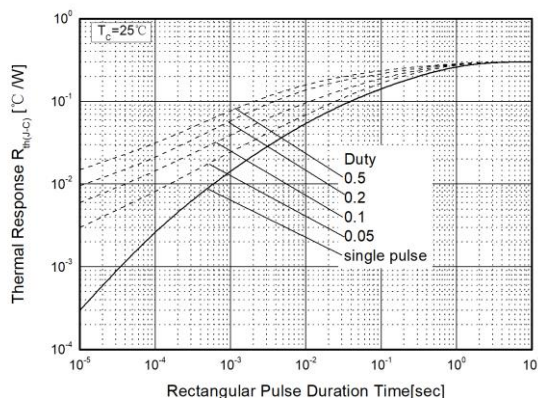


Fig. 5. Total Capacitance vs. Reverse Voltage

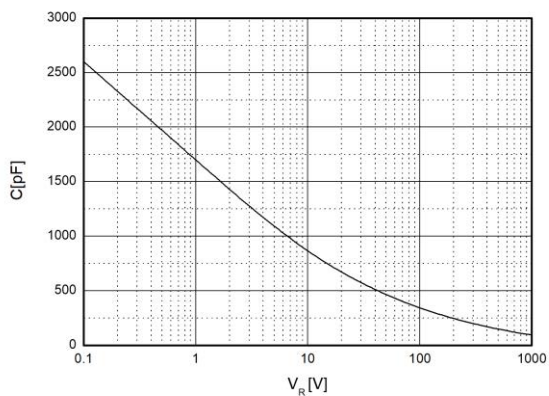
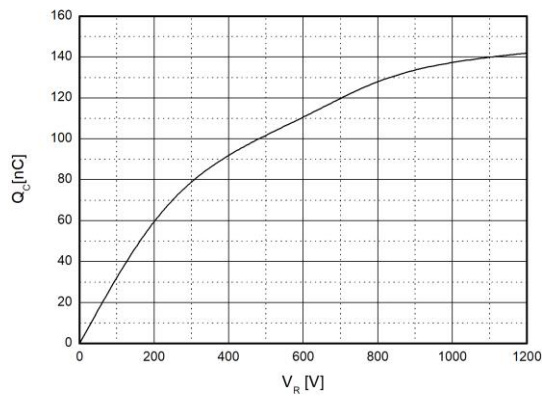
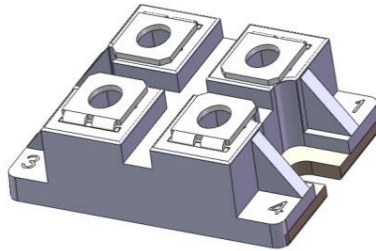


Fig. 6. Total Capacitive Charge vs. Reverse Voltage



Package Dimensions

SOT-227A



(Dimensions in Millimeters)

